II. CLAIM AMENDMENTS

1. (Currently Amended) A thin film resonator structure (1200, 1300, 1400), where a certain wave mode is piezoelectrically excitable and which resonator structure comprises at least two conductor layers (110, 120) and at least one piezoelectric layer (100) in between the conductor layers, said resonator structure having a first area over which said conductor layers and piezoelectric layer extend, which first area is a piezoelectrically excitable area of the resonator structure, **characterized** in that

- the resonator structure comprises a frame-like zone (2, 4) of any shape which frame-like zone confines a center area (3) within the first area of the resonator structure,

- a cut-off frequency of the piezoelectrically excited thickness extensional wave mode in the layer structure of the frame-like zone is different from the cut-off frequency of the piezoelectrically excited thickness extensional wave mode in the layer structure of the center area, and

- a width of the frame-like zone and acoustical properties of the layer structure in the frame-like zone are arranged so that displacement relating to the piezoelectrically excited strongest resonance mode is substantially uniform in the center area of the resonator.

2. (Previously Presented) A resonator structure according to claim 1, **characterized** in that the width of the frame-like zone is not uniform.

3. (Previously Presented) A resonator structure according to claim 1, **characterized** in that the cross-section of the frame-like zone is not uniform.

4. (Previously Presented) A resonator structure according to claim 1, **characterized** in that the frame-like zone has a substantially uniform width.

5. (Previously Presented) A resonator structure according to claim 4, **characterized** in that the cross-section of the frame-like zone is substantially rectangular.

6. (Previously Presented) A resonator structure according to claim 4, **characterized** in that the width of the frame-like zone and the cut-off frequency in the layer structure of the frame-like zone are arranged so that a lateral resonance frequency in infinitely long rectangular resonator, whose width is twice the width of the frame-like zone, where the cut-off frequency is the same as the cut-off frequency in the layer structure in the frame-like zone and which is surrounded by the layer structure of the area surrounding the frame-like zone, is substantially the same as the cut-off frequency in the center area.

7. (Previously Presented) A resonator structure (1230) according to claim 1, **characterized** in that the frame-like zone is substantially circular.

8. (Previously Presented) A resonator structure (1220) according to claim 1, **characterized** in that the frame-like zone is substantially polygonal.

9. (Previously Presented) A resonator structure (1210) according to claim 8, **characterized** in that the frame-like zone is substantially rectangular.

10. (Previously Presented) A resonator structure according to claim 9, **characterized** in that the cross-section of the frame-like zone is substantially rectangular.

11. (Previously Presented) A resonator structure (820, 840, 850) according to claim 1, **characterized** in that the cut-off frequency of the piezoelectrically excited wave mode in the layer structure of the frame-like zone is higher than the cut-off frequency of the piezoelectrically excited wave mode in the layer structure of the center area.

12. (Previously Presented) A resonator structure according to claim 11, **characterized** in that the dispersion of the piezoelectrically excited wave mode is of type II in the frame-like area.

13. (Previously Presented) A resonator structure (810, 830, 860) according to claim 1, **characterized** in that the cut-off frequency of the piezoelectrically excited wave mode in the layer structure of the frame-like zone is lower than the cut-off frequency of the piezoelectrically excited wave mode in the layer structure of the center area.

14. (Previously Presented) A resonator structure according to claim 13, **characterized** in that the dispersion of the piezoelectrically excited wave mode is of type I in the frame-like area.

15. (Previously Presented) A resonator structure (1000, 1300, 1700, 1820) according to claim 1, **characterized** in that the frame-like zone is within the first area.

16. (Previously Presented) A resonator structure according to claim 1, **characterized** in that the frame-like zone is at least partly outside the first area.

17. (Previously Presented) A resonator structure (1810, 1820) according to claim 1, **characterized** in that at least one of the layers of the resonator has a first part, which is

patterned by variation in thickness, and a second part of uniform thickness.

18. (Previously Presented) A resonator structure (1810) according to claim 17, **characterized** in that the first part is a rim covering the frame-like zone.

19. (Previously Presented) A resonator structure according to claim 18, **characterized** in that the layer having the first part and the second part is a top electrode of the resonator structure.

20. (Previously Presented) A resonator structure (1820) according to claim 17, **characterized** in that the second part covers the frame-like zone.

21. (Previously Presented) A resonator structure according to claim 20, **characterized** in that the layer having the first part and the second part is a passivation layer of the resonator structure.

22. (Previously Presented) A resonator structure (1710) according to claim 1, **characterized** in that

- the thickness of the center area is substantially uniform,

- the thickness of a region surrounding the frame-like zone is substantially uniform at a certain region next to an interface between the frame-like zone and the surrounding region, and

- the thickness of the frame-like zone varies over the width of the frame-like zone.

23. (Previously Presented) A resonator structure according to claim 22, **characterized** in that the frame-like zone is thicker at an interface between the center area and the frame-like

zone than at the interface between the frame-like zone and the surrounding material.

24. (Previously Presented) A resonator structure according to claim 22, **characterized** in that the frame-like zone is thinner at the interface between the center area and the frame-like zone than at the interface between the frame-like zone and the surrounding material.

25. (Previously Presented) A resonator structure (1400) according to claim 1, **characterized** in that in the frame-like zone a first layer (120) extending at least over the center area and the frame-like zone overlaps with a second layer (140) extending over the frame-like zone and over some part of the area surrounding the frame-like zone.

26. (Previously Presented) A resonator structure according to claim 25, **characterized** in that the first layer is one of the conductor layers and the second layer is a passivation layer.

27. (Previously Presented) A resonator structure (1300) according to claim 1, **characterized** in that it comprises at least one frame-like layer, which forms the frame-like zone.

28. (Previously Presented) A resonator structure (1000) according to claim 1, **characterized** in that the frame-like zone is arranged by varying the thickness of at least one of the layers extending at least over the frame-like zone and the center area, so that the thickness of said layer is different in the frame-like zone than in the center area.

29. (Previously Presented) A resonator structure according to claim 28, **characterized** in that said layer is a top electrode (120) of the resonator structure.

30. (Previously Presented) A resonator structure according to claim 28, **characterized** in that said layer is thicker in the frame-like zone than in the center area.

31. (Previously Presented) A resonator structure according to claim 28, **characterized** in that said layer is thinner in the frame-like zone than in the center area.

32. (Previously Presented) A resonator structure according to claim 1, **characterized** in that it is a thin film bulk acoustic wave resonator.

33. (Previously Presented) A resonator structure according to claim 1, **characterized** in that the thickness of the resonator structure in the center area is substantially uniform.

34. (Previously Presented) A resonator structure according to claim 1, **characterized** in that the thickness of the resonator in the center area is different in a first part of the center area than in a second part in the center area.

35. (Currently Amended) A filter comprising at least one thin film resonator structure (1200, 1300, 1400), where a certain wave mode is piezoelectrically excitable and which resonator structure comprises at least two conductor layers (110, 120) and at least one piezoelectric layer (100) in between the conductor layers, said resonator structure having a first area over which said conductor layers and piezoelectric layer extend, which first area is a piezoelectrically excitable area of the resonator structure, **characterized** in that

- the resonator structure comprises a frame-like zone (2, 4) of any shape which frame-like zone confines a center area (3) within the first area of the resonator structure,

- a cut-off frequency of the piezoelectrically excited thickness extensional wave mode in the layer structure of the

frame-like zone is different from the cut-off frequency of the piezoelectrically excited thickness extensional wave mode in the layer structure of the center area, and

- a width of the frame-like zone and acoustical properties of the layer structure in the frame-like zone are arranged so that displacement relating to the piezoelectrically excited strongest resonance mode is substantially uniform in the center area of the resonator.

36. (Previously Presented) A filter according to claim 35 wherein the resonator structure comprises at least four layers that includes at least two piezoelectric layers.

37. (Previously Presented) A filter according to claim 36 wherein each of said two conductor layers and each of said two piezoelectric layers is a thin film.

38. (Previously Presented) A resonator structure according to claim 1 wherein the resonator structure comprises at least four layers that includes at least two piezoelectric layers.

39. (Previously Presented) A resonator structure according to claim 38 wherein each of said two conductor layers and each of said two piezoelectric layers is a thin film.